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**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Part 223**

**[Docket No. 150211138-6789-01]**

**RIN 0648-XD771**

**Endangered and Threatened Wildlife and Plants; Proposed Rule to List Two**

**Guitarfishes as Threatened**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Proposed rule; 12-month petition finding; request for comments.

**SUMMARY:** We, NMFS, have completed a comprehensive status review under the Endangered Species Act (ESA) for the common guitarfish (*Rhinobatos rhinobatos*) and the blackchin guitarfish (*Rhinobatos cemiculus*). We have determined that, based on the best scientific and commercial data available, and after taking into account efforts being made to protect these species, both species meet the definition of a threatened species under the ESA. Therefore, we propose to list both species as threatened species under the ESA. We are not proposing to designate critical habitat for either of the species proposed for listing because the geographical areas occupied by these species are entirely outside U.S. jurisdiction. We are soliciting comments on our proposal to list these two foreign marine guitarfish species.

**DATES:** Comments on this proposed rule must be received by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Public hearing requests must be made by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** You may submit comments on this document, identified by NOAA-NMFS-2016-0082, by either of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal eRulemaking Portal. Go to <http://www.regulations.gov#!/docketDetail;D=NOAA-NMFS-2016-0082>. Click the “Comment Now” icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit written comments to Brendan Newell, NMFS Office of Protected Resources (F/PR3), 1315 East West Highway, Silver Spring, MD 20910, USA.

*Instructions:* You must submit comments by one of the above methods to ensure that we receive, document, and consider them. Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered. All comments received are a part of the public record and will generally be posted for public viewing on <http://www.regulations.gov> without change. All personal identifying information (*e.g.*, name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. We will accept anonymous comments (enter “N/A” in the required fields if you wish to remain anonymous). You can find the petition, status review report, **Federal**

**Register** notices, and the list of references electronically on our website at

<http://www.nmfs.noaa.gov/pr/species/petition81.htm>.

**FOR FURTHER INFORMATION CONTACT:** Brendan Newell, NMFS, Office of Protected Resources (OPR), Telephone: (301) 427-7710 or Marta Nammack, NMFS, (OPR), Telephone: (301) 427-8469.

**SUPPLEMENTARY INFORMATION:**

*Background*

On July 15, 2013, we received a petition from WildEarth Guardians to list 81 marine species as threatened or endangered under the ESA. This petition included species from many different taxonomic groups, and we prepared our 90-day findings in batches by taxonomic group. We found that the petitioned actions may be warranted for 27 of the 81 species and announced the initiation of status reviews for each of the 27 species (78 FR 63941, October 25, 2013; 78 FR 66675, November 6, 2013; 78 FR 69376, November 19, 2013; 79 FR 9880, February 21, 2014; and 79 FR 10104, February 24, 2014). This document addresses the findings for 2 of those 27 species: common guitarfish (*Rhinobatos rhinobatos*) and blackchin guitarfish (*Rhinobatos cemiculus*). The status of, and relevant **Federal Register** notices for, the other 25 species can be found on our website at <http://www.nmfs.noaa.gov/pr/species/petition81.htm>.

We are responsible for determining whether species are threatened or endangered under the ESA (16 U.S.C. 1531 *et seq.*). To make this determination, we consider first whether a group of organisms constitutes a “species” under the ESA, then whether the status of the species qualifies it for listing as either threatened or endangered. Section 3 of the ESA defines a “species” to include “any subspecies of fish or wildlife or plants, and

any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.”

On February 7, 1996, NMFS and the U.S. Fish and Wildlife Service (USFWS; together, the Services) adopted a policy describing what constitutes a distinct population segment (DPS) of a taxonomic species (the DPS Policy; 61 FR 4722). The DPS Policy identified two elements that must be considered when identifying a DPS: (1) the discreteness of the population segment in relation to the remainder of the species (or subspecies) to which it belongs; and (2) the significance of the population segment to the remainder of the species (or subspecies) to which it belongs. As stated in the DPS Policy, Congress expressed its expectation that the Services would exercise authority with regard to DPSs sparingly and only when the biological evidence indicates such action is warranted. Based on the scientific information available, we determined that the common guitarfish (*Rhinobatos rhinobatos*) and blackchin guitarfish (*Rhinobatos cemiculus*) are “species” under the ESA. There is nothing in the scientific literature indicating that either of these species should be further divided into subspecies or DPSs.

Section 3 of the ESA defines an endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range” and a threatened species as one “which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” We interpret an “endangered species” to be one that is presently in danger of extinction. A “threatened species,” on the other hand, is not presently in danger of extinction, but is likely to become so in the foreseeable future (that is, at a later time). In other words, the primary statutory difference between a threatened and endangered species is the timing of when a species

may be in danger of extinction, either presently (endangered) or in the foreseeable future (threatened).

When we consider whether a species might qualify as threatened under the ESA, we must consider the meaning of the term “foreseeable future.” It is appropriate to interpret “foreseeable future” as the horizon over which predictions about the conservation status of the species can be reasonably relied upon. The foreseeable future considers the life history of the species, habitat characteristics, availability of data, particular threats, ability to predict threats, and the reliability to forecast the effects of these threats and future events on the status of the species under consideration. Because a species may be susceptible to a variety of threats for which different data are available, or which operate across different time scales, the foreseeable future is not necessarily reducible to a particular number of years.

Section 4(a)(1) of the ESA requires us to determine whether any species is endangered or threatened due to any of the following factors: the present or threatened destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms; or other natural or manmade factors affecting its continued existence. Under section (4)(b)(1)(A), we are also required to make listing determinations based solely on the best scientific and commercial data available, after conducting a review of the species’ status and after taking into account efforts being made by any state or foreign nation to protect the species.

### **Status Review**

The status review for the two guitarfishes addressed in this finding was conducted by a NMFS biologist in the Office of Protected Resources. Henceforth, the status review report for these guitarfishes will be referenced in this preamble as “Newell (2016)”, and is available at <http://www.nmfs.noaa.gov/pr/species/petition81.htm> and on the respective species pages found on the Office of Protected Resources website (<http://www.nmfs.noaa.gov/pr/species/index.htm>). In order to complete the status review, information was compiled on each species' biology, ecology, life history, threats, and conservation status from information contained in the petition, our files, a comprehensive literature search, and consultation with experts. We also considered information submitted by the public in response to our petition finding.

Newell (2016) provided an evaluation of the factors specified by section 4(a)(1)(A)-(E) of the ESA (16 U.S.C. 1533(a)(1)(A)-(E)) (*Summary of Factors Affecting the Two Guitarfish Species*), as well as the species' demographic risks, such as low productivity, and then synthesized this information to estimate the extinction risk of the species (*Extinction Risk*). For the complete threats assessment, demographic risks analysis, and risk of extinction analysis, see Newell (2016).

The demographic risk analysis, mentioned above, is an assessment of the manifestation of past threats that have contributed to the species' current status and informs the consideration of the biological response of the species to present and future threats. For this analysis, Newell (2016) considered the demographic viability factors developed by McElhany *et al.*, (2000). The approach of considering demographic risk factors to help frame the consideration of extinction risk has been used in many of our status reviews, including for Pacific salmonids, Pacific hake, walleye pollock, Pacific

cod, Puget Sound rockfishes, Pacific herring, scalloped and great hammerhead sharks, and black abalone (*see <http://www.nmfs.noaa.gov/pr/species/>* for links to these reviews). In this approach, the collective condition of individual populations is considered at the species level according to four demographic viability factors: abundance; growth rate/productivity; spatial structure/connectivity; and diversity. These viability factors reflect concepts that are well-founded in conservation biology, and that individually and collectively provide strong indicators of extinction risk.

In conducting the threats assessment, Newell (2016) identified and summarized the section 4(a)(1) factors that are currently operating on the species and their likely impact on the biological status of the species. Newell (2016) also looked for future threats (where the impact on the species has yet to be manifested), and considered the reliability of forecasting the effects of these threats and future events on the status of these species.

Using the findings from the demographic risk analysis and threats assessment, Newell (2016) evaluated the overall extinction risk of the species. Because species-specific information (such as current abundance) is sparse, qualitative “reference levels” of risk were used to describe extinction risk. The definitions of the qualitative “reference levels” of extinction risk were as follows: “Low Risk”— a species is at low risk of extinction if it is not at a moderate or high level of extinction risk (see “Moderate risk” and “High risk” below). A species may be at low risk of extinction if it is not facing threats that result in declining trends in abundance, productivity, spatial structure, or diversity. A species at low risk of extinction is likely to show stable or increasing trends in abundance and productivity with connected, diverse populations. “Moderate Risk”— a

species is at moderate risk of extinction if it is on a trajectory that puts it at a high level of extinction risk in the foreseeable future (see description of “High Risk” below). A species may be at moderate risk of extinction due to projected threats or declining trends in abundance, productivity, spatial structure, or diversity. “High Risk”— a species with a high risk of extinction is at or near a level of abundance, productivity, spatial structure, and/or diversity that places its continued persistence in question. The demographics of a species at such a high level of risk may be highly uncertain and strongly influenced by stochastic or compensatory processes. (Stochastic processes are random processes evolving with time; compensatory processes are density-dependent processes where a decrease in a species’ population leads to reduced reproductive success, such as by an increase in the rate of predation on eggs or young, or through the reduced likelihood of finding a mate.) Similarly, a species may be at high risk of extinction if it faces clear and present threats (e.g., confinement to a small geographic area; imminent destruction, modification, or curtailment of its habitat; or disease epidemic) that are likely to create present and substantial demographic risks.

The draft status review report (Newell (2016)) was submitted to independent peer reviewers; comments and information received from peer reviewers were addressed and incorporated as appropriate before finalizing the draft report. The status review report is available on our website (see ADDRESSES section) and the peer review report is available at

*[http://www.cio.noaa.gov/services\\_programs/prplans/PRsummaries.html](http://www.cio.noaa.gov/services_programs/prplans/PRsummaries.html)*. Below we summarize information from the report and our analysis of the status of the two guitarfish species. Further details can be found in Newell (2016).



## Species Descriptions

Guitarfishes are cartilaginous fishes (class *Chondrichthyes*), in the subclass *Elasmobranchii* (which includes all cartilaginous fishes except chimaeras). They are part of the super order *Batoidea*, and members of the order *Rajiformes*, which also includes skates, sawfishes, electric rays, and rays. *Rajiformes* are characterized by a dorsoventrally depressed body with the anterior edge of the pectoral fin attached to the side of the head (Serena 2005). Guitarfishes are members of the family *Rhinobatidae*, which have a moderately depressed, elongated, shark-like body form, with pectoral fins barely enlarged (compared to other batoids except for sawfish), a subtriangular disk, two sub-equal, well-developed, and well-separated dorsal fins, and an elongated, wedge-shaped snout. Guitarfishes have a stouter tail than all other batoids except sawfishes and torpedo rays (Bigelow & Schroeder 1953; Serena 2005).

*Rhinobatos rhinobatos* and *Rhinobatos cemiculus* are sympatric species with relatively wide, overlapping ranges in the subtropical waters of the eastern Atlantic and Mediterranean. In the Atlantic both species range from Northern Portugal south to Angola, with *R. rhinobatos* extending slightly farther north into the Bay of Biscay in south Atlantic France. Both species' historical ranges include all Mediterranean countries with the exception of Malta and France, which are only in the range of *R. rhinobatos*. Both species are primarily found in coastal and estuarine, sandy or muddy bottomed habitat from very shallow water to depths of approximately 100 m (Corsini-Foka 2009; Melendez & Macias 2007; Serena 2005). Both species feed on a variety of macrobenthic organisms, including crustaceans, fishes, and mollusks (Basusta *et al.*, 2007; Enajjar *et al.*, 2007; Lteif 2015; Patokina & Litvinov 2005).

In terms of reproduction, *Rhinobatos rhinobatos* and *Rhinobatos cemiculus* are aplacental viviparous species (giving birth to live, free swimming young with embryo nutrition coming from a yolk sac rather than a placental connection). Both species aggregate seasonally to reproduce, with females visiting protected shallow waters to give birth (Capape & Zaouali 1994; Demirhan *et al.*, 2010; Echwikhi *et al.*, 2013; Ismen *et al.*, 2007). As with many other elasmobranchs, females mature later and at greater sizes than males, females reach greater total length, and female fecundity increases with total length (TL) (Capape & Zaouali 1994; Cortés 2000; Demirhan *et al.*, 2010; Enajjar *et al.*, 2008; Ismen *et al.*, 2007). Based on the limited available information, both species seem to be relatively fast growing compared to most elasmobranch species (Başusta *et al.*, 2008; Enajjar *et al.*, 2012)\_ENREF\_53. Additional species-specific descriptions are provided below.

Common guitarfish (*Rhinobatos rhinobatos*) are khaki-brown colored on their dorsal surface with a white underside (Melendez & Macias 2007). *R. rhinobatos* have rostral ridges that are widely separated over their entire length with the anterior of their nasal lobe level with the inner corner of their nostril. They have a wide posterior nasal flap and spiracles with two moderately developed folds, with the outer fold more prominent. They have no dorsal or anal spines and relatively small thorns present around the inner margin of their orbits, between their spiracles, on their shoulders and along the midline of their discs and tails (Melendez & Macias 2007). There are regional variations in the maximum size and size at maturity of *R. rhinobatos*. TL ranges from 22-185 cm with the heaviest specimen recorded reaching 26.6 kg (Edelist 2014; Ismen *et al.*, 2007). The best available information estimated that 50 percent of females and males reached

maturity between 79-87 cm TL and 68-78 cm TL, respectively (Abdel-Aziz *et al.*, 1993; Demirhan *et al.*, 2010; Enajjar *et al.*, 2008), and that gestation lasts 9-12 months with females giving birth to 1-14 pups in the late summer or early fall (see Newell (2016)). The maximum age recorded was 24 years old (Başusta *et al.*, 2008) and *R. rhinobatos* likely matures between 2 and 4 years old (Başusta *et al.*, 2008; Demirhan *et al.*, 2010). For a more detailed discussion of size, age, and reproduction see Newell (2016).

Blackchin guitarfish (*Rhinobatos cemiculus*) have a brown dorsal surface with a white underside and usually a blackish blotch on the snout, especially in juveniles. Their rostral ridges are narrowly separated and nearly join in the front. Their anterior nasal lobes extend little if any and their posterior nasal flaps are narrow. Their spiracle has two well-developed folds of about the same size. They have no anal or dorsal spine and have thorns present around the inner margin of their orbits, between their spiracles, on their shoulders, and along the midline of their disc and tail (Melendez & Macias 2007). There are regional variations in the maximum TL and size at maturity. TL ranges from 32-245 cm with the heaviest specimen recorded reaching 26 kg, although the maximum weight is likely much higher because the 26 kg specimen was only 202 cm TL (Capape & Zaouali 1994; Seck *et al.*, 2004). Based on the best available information, 50 percent of females and males reached maturity between 138-153 cm TL and 112-138 cm TL, respectively (Enajjar *et al.*, 2012; Valadou *et al.*, 2006). The reported litter size varies greatly, but the reported range is 2-24 pups per litter with small litters typical (Capape & Zaouali 1994; Seck *et al.*, 2004; Valadou *et al.*, 2006). *R. cemiculus* is more prolific than *R. rhinobatos*, likely because it reaches a greater size than *R. rhinobatos* (Capape & Zaouali 1994). Gestation lasts between 5-12 months with parturition occurring in the later summer and

early fall (Capape & Zaouali 1994; Seck *et al.*, 2004; Valadou *et al.*, 2006). Enajjar *et al.*, (2012) found that males and females in the Gulf of Gabés, Tunisia, matured around 3 and 5 years of age, respectively, and that individuals of the species can live for at least 14 years. No other age data were found for this species. For a more detailed discussion of size, age, and reproduction, see Newell (2016).

### **Historical and Current Distribution and Population Abundance**

#### *Rhinobatos rhinobatos*

Historically the common guitarfish was known on all shores of the Mediterranean as well as the coastal eastern Atlantic from the Bay of Biscay (France) to Angola (Melendez & Macias 2007). Throughout its historical Mediterranean range this species has likely always been rare in most of the northwestern Mediterranean, and more common in the Levantine Sea and along the southern shore of the Mediterranean from southern Tunisia to Egypt (Abdel-Aziz *et al.*, 1993; Capapé *et al.*, 2004; Çek *et al.*, 2009; Edelist 2014; Lteif 2015; Saad *et al.*, 2006). Presently *R. rhinobatos* has been extirpated from the northwestern Mediterranean, including the coasts of Spain and France, as well as the Tyrrhenian, Ligurian, and Adriatic Seas (Bertrand *et al.*, 2000; Capapé *et al.*, 2006; Medits 2016a; Notarbartolo di Sciara *et al.*, 2007b). In this now curtailed portion of its range, up until the early 20<sup>th</sup> century, *R. rhinobatos* was likely only common in the waters around Sicily (Doderlein 1884; Psomadakis *et al.*, 2009) and the Balearic Islands of Spain (Notarbartolo di Sciara *et al.*, 2007b).

*R. rhinobatos* is present in all Tunisian waters, although less common than *R. cemiculus*. It is more abundant in the southeastern area around the Gulf of Gabès and the Bahiret el Biban, which are areas used by this species for reproduction (Capapé *et al.*,

2004; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012; Enajjar *et al.*, 2008). In the Northern and Southern Lagoons near the City of Tunis in the Gulf of Tunis on the northwest coast of Tunisia, *R. rhinobatos* has become common since 2004, in response to environmental restoration of the lagoons (Mejri *et al.*, 2004). Little information was available for the status of *R. rhinobatos* in Libyan waters beyond that they are targeted by fishers (Séret & Serena 2002). In a 2005 report, the Regional Activity Centre for Specially Protected Areas (RAC/SPA) proposed a research program that would focus on eight cartilaginous fishes of Libya, including *R. rhinobatos*, because of their commercial importance and interest in their conservation (RAC/SPA 2005). According to the proposal authors, some species, including guitarfishes, which are now rare or extirpated in other parts of the Mediterranean, are still common in Libyan waters. In neighboring Egypt, *R. rhinobatos* was common in commercial fishery catches in 1990 (Abdel-Aziz *et al.*, 1993). Over the last 10 years, guitarfishes and other elasmobranchs have been increasingly exploited by Egyptian fishers as desirable bycatch species, and recent declines in landings indicate that these populations are currently being overexploited (A. Marbourk, NOS, pers. comm. to B. Newell, NMFS, 21 July, 2016).

North of Egypt, *R. rhinobatos* was considered common in Israeli waters as of 2006, with the largest TL for the species recorded from a female specimen in the area (Edelist 2014; Golani 2006). Lernau and Golani (2004) state, “swarms of *Rhinobatos rhinobatos* are captured with purse seines.” Although this statement is not connected to a specific fishing area it appears the authors are either discussing fishing along the Israeli coast or in the nearby Bardawil Lagoon on the Egyptian Sinai Peninsula. *R. rhinobatos* is the most commonly observed elasmobranch in Lebanese fisheries (Lteif 2015). In a

study of elasmobranch exploitation in Syria in the early 2000s, *R. rhinobatos* was characterized as a “moderate economically important species either for being caught in little quantities with high efforts in fishing, or for their little demand for human consumption. Or maybe for both reasons” (Saad *et al.*, 2006). By comparison, *R. cemiculus* was characterized as a “very economically important species being caught in plentiful quantities and highly consumable” (Saad *et al.*, 2006). No clarification was given as to whether there is low catch with high effort, or low demand. Regardless, the fact that *R. rhinobatos* was characterized as being of “moderate” economic importance indicates this fish is more than an occasional visitor to Syrian waters.

In the Turkish portion of the Levantine Sea (off southeastern Turkey), *R. rhinobatos* is common in fisheries bycatch, including in İskenderun Bay, where, as of 2012, it was less common than *R. cemiculus* (Başusta *et al.*, 2012; Çek *et al.*, 2009). West of İskenderun Bay, based on samples collected in the early 1980s, *R. rhinobatos* is also common in Mersin Bay (Gücü & Bingel 1994), and it was collected in a 2002-2003 survey of the Karataş Coasts (located between İskenderun Bay and Mersin Bay). *R. rhinobatos* has also been recorded in the Gulf of Antalya, west of Mersin Bay (C. Mancusi, ARPAT, pers. comm. to B. Newell, NMFS, 23 March, 2016). Individuals of all life history stages, including large quantities of pregnant females, have been captured in the Gulf of Gabès and the Bahiret el Biban (Capapé *et al.*, 2004), Alexandria, Egypt (Abdel-Aziz *et al.*, 1993), and in İskenderun Bay (Çek *et al.*, 2009). In the Aegean Sea, which is bound by the east coast of Turkey and the west coast of Greece, *R. rhinobatos* is rare (Corsini-Foka 2009). It was present on a checklist from 1969 (Bilecenoğlu *et al.*, 2014), with one individual reported in 2008 and another in the 1970s (Corsini-Foka

2009), while no occurrences were detected during a 2006-2007 survey of Saroz Bay in the northeastern Aegean (Keskin *et al.*, 2011).

In the Atlantic, north of the strait of Gibraltar, the only records we found of this species were from checklists and museum records from Spain and Portugal (Bañón *et al.*, 2010; Carneiro *et al.*, 2014) and it not is reported in the International Council for the Exploration of the Sea (ICES) DATRAS data base, which is a collection of 45 years' worth of survey data including data collected off the Atlantic coasts of France, Spain, and Portugal (ICES 2016), indicating that they are likely historically rare North of the Strait of Gibraltar.

Along the Atlantic coast of Africa, this species is found from Morocco to Angola. It is likely that this species is rare in Moroccan waters (Gulyugin *et al.*, 2006; Serghini *et al.*, 2008). In West Africa, *R. rhinobatos* has been one of the most common and widely distributed elasmobranchs in Mauritania, Gambia, Guinea, Guinea-Bissau, Senegal, and Sierra Leone, but has become scarce throughout most of this portion of its range in recent decades (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Mauritania, fishing pressure has driven declines in the average size of guitarfishes landed in the Banc d'Arguin National Park from 1998 to 2007 (Diop & Dossa 2011). Restrictions on elasmobranch fishing in the park have allowed guitarfishes to recover locally but they are still exploited throughout the rest of Mauritanian waters (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Senegal, guitarfishes are heavily targeted and this fishing pressure has caused local declines in both species, with substantial declines reported over the period of 1990 to 2005 (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz,

NMFS, 21 June, 2016; Notarbartolo di Sciara *et al.*, 2007a; Notarbartolo di Sciara *et al.*, 2007b).

*Rhinobatos rhinobatos* occurs in the waters of Guinea-Bissau off the mainland and around the Bijagós Archipelago where it is targeted by fishers (Cross 2015; Fowler & Cavanagh 2005; Kasisi 2004; Tous *et al.*, 1998). In the late 1990s, rapid and substantial declines of *R. rhinobatos* were reported in the Bijagós Archipelago, as specialized and sophisticated fishing teams targeting elasmobranchs for their fins migrated into the area, although previously the area had seen almost no elasmobranch fishing (Tous *et al.*, 1998). In Guinea it is likely that this species is experiencing similar declines to those in Guinea-Bissau, Senegal, and Gambia (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Sierra Leone, this species is one of the most heavily exploited elasmobranchs (Diop & Dossa 2011). It was recorded from 2008-2010 in a survey by the Sierra Leone Ministry of Fisheries and Marine Resources as well as in industrial and artisanal fishery data (Sierra Leone Ministry of Fisheries and Marine Resources, pers. comm. to M. Miller, NMFS, 11 April, 2016). *Rhinobatos rhinobatos* is listed in an updated checklist of the marine fishes of Cape Verde, an island nation located about 600 km west of Dakar, Senegal. However, the authors of the checklist considered the record of *R. rhinobatos* invalid, stating that they did not know of any records of this species in the Cape Verde Islands (Wirtz *et al.*, 2013).

Little information about the status of *R. rhinobatos* was available throughout the rest of this species' Atlantic range. From January 2009 to December 2010, *R. rhinobatos* was recorded during a study of landings by artisanal fishers based in the Ghanaian villages of Ahwaim and Elmina (Nunoo & Asiedu 2013). *Rhinobatos rhinobatos* is



present in Gabon, but is likely less abundant than *R. cemiculus* (G. De Bruyne, Wildlife Conservation Society, Mayumba, pers. comm. to B. Newell, NMFS, 26 June, 2016).

*Rhinobatos rhinobatos* was not caught from March 2013 to May 2015 during a study of artisanal fisheries around Mayumba, Gabon (De Bruyne 2015). No information on this species was available from Ghana and Gabon prior to these periods of study. We found no data for *R. rhinobatos* in the following countries, which have coastline in this species' range: Liberia, Cote d'Ivoire, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, São Tomé and Príncipe, Republic of the Congo, Democratic Republic of the Congo, and Angola.

#### *Rhinobatos cemiculus*

Historically, the blackchin guitarfish had a distribution similar to, but slightly more restricted than, *R. rhinobatos*, with its range listed through most of the coastal Mediterranean, and in the eastern Atlantic from Portugal to Angola (Melendez & Macias 2007). In the Mediterranean, there are no records of this species off the coast of France (Capapé *et al.*, 2006), and there are doubts about whether *R. cemiculus* occurred in the Adriatic Sea (Akyol & Capapé 2014). Throughout its historical Mediterranean range, this species has likely always been rare in most of the northwestern Mediterranean, and more common in the Levantine Sea and along the southern shore of the Mediterranean from southern Tunisia to Egypt (Rafrafi-Nouira *et al.*, 2015). Presently all guitarfishes have been extirpated from the northwestern Mediterranean including the coast of Spain, as well as from the Tyrrhenian, Ligurian, and Adriatic Seas (Bertrand *et al.*, 2000; Capapé *et al.*, 2006; Medits 2016a; Notarbartolo di Sciara *et al.*, 2007b). In this now curtailed portion of its range, up until the early 20<sup>th</sup> century, *R. cemiculus* may have been common

in the waters around Sicily (Doderlein 1884; Psomadakis *et al.*, 2009), and frequently occurred around the Balearic Islands of Spain (Notarbartolo di Sciara *et al.*, 2007b).

*Rhinobatos cemiculus* commonly occur in fishery landings, both as a target species and as bycatch from the waters of the east coast of Tunisia, the north coast of Africa, and the eastern Mediterranean from Israel to southeastern Turkey (Capape & Zaouali 1994; Lteif 2015; Saad *et al.*, 2006). It is fished throughout all of Tunisian waters. It is considered rare along the north coast of Tunisia, although it may become more common in this area due to warming seas (Rafrafi-Nouira *et al.*, 2015) and environmental restoration (Mejri *et al.*, 2004). It has always been abundant in southeastern Tunisia around the Gulf of Gabès and the Bahiret el Biban, where it is more abundant than *R. rhinobatos*, and is known to use these areas during reproduction, including for parturition (Capapé *et al.*, 2004; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012; Enajjar *et al.*, 2008).

As with *R. rhinobatos*, little information is available on the status of *R. cemiculus* in Libyan waters beyond that they are targeted by fishers (Séret & Serena 2002), and that they are still common, relative to their occurrence in other parts of the Mediterranean (RAC/SPA 2005). Guitarfishes are consumed in Libya, and in a 2005 proposal for a research program focused on the cartilaginous fishes of Libya, *R. cemiculus* was selected as one of the eight priority species for research because of its commercial importance and interest in its conservation (RAC/SPA 2005). Capapé *et al.*, (1981) reported that an Egyptian museum specimen of *R. cemiculus* originated from the Red Sea, but no other reference to this species occurring in the Red Sea was reported. We found no information

on the distribution or abundance of *R. cemiculus* in Mediterranean Egyptian waters, but this fish likely occurs in this area (Capape & Zaouali 1994).

North of Egypt, *R. cemiculus* is considered prevalent in Israeli waters (less common than *R. rhinobatos*), where it is caught as bycatch by commercial fishers (Golani 2006). From December 2012 to October 2014, *R. cemiculus* was the second most common elasmobranch in Lebanese fisheries catches after *R. rhinobatos* (Lteif 2015). In a study of elasmobranch exploitation in Syria in the early 2000s, *R. cemiculus* was characterized as a “very economically important species being caught in plentiful quantities and highly consumable” (Saad *et al.*, 2006).

North of Syria, *R. cemiculus* is one of the most common elasmobranchs in fisheries landings in İskenderun Bay, Turkey (and more abundant than *R. rhinobatos*) (Başusta *et al.*, 2012; Keskin *et al.*, 2011). West of İskenderun Bay, *R. cemiculus* was caught during a 2006 study of shrimp trawl bycatch in Mersin Bay sampling (Duruer *et al.*, 2008). *Rhinobatos rhinobatos*, but not *R. cemiculus*, was collected in a 2002-2003 survey of the Karataş Coasts (Çiçek *et al.*, 2014). In the Aegean Sea, *R. cemiculus* is rare (Corsini-Foka 2009; Filiz *et al.*, 2016). In 2013, two large *R. cemiculus* were caught in trawls in İzmir Bay, Turkey (eastern-central Aegean), which the authors considered a range expansion for this species (Akyol & Capapé 2014). Further expanding the range of this species, in October 2012 one *R. cemiculus* was caught near Bursa, Turkey, in the Sea of Marmara, which connects the Aegean Sea and the greater Mediterranean to the Black Sea (C. Mancusi, ARPAT, pers. comm. to B. Newell, NMFS, 23 March, 2016), although this record has not been reported in peer-reviewed literature.

In the Atlantic, north of the Strait of Gibraltar, the only records we found of this species were from checklists and museum records from Spain and Portugal (Bañón *et al.*, 2010; Carneiro *et al.*, 2014), although Rafrafi-Nouira *et al.*, (2015) noted that north of the Strait of Gibraltar, *R. cemiculus* was only known off Portugal. This species was not reported in the DATRAS data base (ICES 2016), indicating that they have historically been rare north of the Strait of Gibraltar.

Along the Atlantic coast of Africa, this species is found from Morocco to Angola. It is likely rare in Moroccan waters (Gulyugin *et al.*, 2006; Serghini *et al.*, 2008). In West Africa, *R. cemiculus* has been one of most common and widely distributed elasmobranchs in Mauritania, Gambia, Guinea, Guinea-Bissau, Senegal, and Sierra Leone, but it has become scarce throughout most of this portion of its range in recent decades (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Mauritania, fishing pressure has driven declines in the average size of guitarfishes landed in the Banc d'Arguin National Park from 1998 to 2007, resulting in 95 percent of the landed *R. cemiculus* being smaller than the size at 50 percent maturity (Diop & Dossa 2011). Restrictions on elasmobranch fishing in the park have allowed guitarfishes to recover locally, but they are still exploited throughout the rest of Mauritanian waters (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Senegal, guitarfishes are heavily targeted, and this has caused local declines in both species, with substantial declines reported over the period of 1990 to 2005 (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016; Notarbartolo di Sciara *et al.*, 2007a; Notarbartolo di Sciara *et al.*, 2007b).

*Rhinobatos cemiculus* occurs in the waters of Guinea-Bissau off the mainland and around the Bijagós Archipelago, where they are targeted by fishers (Cross 2015; Fowler & Cavanagh 2005; Kasisi 2004; Tous *et al.*, 1998). *Rhinobatos cemiculus* was one of the elasmobranch species taken in the highest numbers in 1989 during experimental fishing trips (Diop & Dossa 2011). In the late 1990s, rapid and substantial declines of *R. cemiculus* were reported in the Bijagós Archipelago, as specialized and sophisticated fishing teams targeting elasmobranchs for their fins migrated into the area, although previously the area had seen almost no elasmobranch fishing (Tous *et al.*, 1998). In Guinea, just south of Guinea-Bissau, *R. cemiculus* is one of the most important fishery species (Diop & Dossa 2011), and it is likely that this species is experiencing declines similar to those in Guinea, Senegal, and Gambia (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Sierra Leone, this species is one of the most heavily exploited elasmobranchs (Diop & Dossa 2011). It was recorded from 2008 to 2010 in a survey by the Sierra Leone Ministry of Fisheries and Marine Resources as well as in industrial and artisanal fishery data (Sierra Leone Ministry of Fisheries and Marine Resources, pers. comm. to M. Miller, NMFS, 11 April, 2016). *Rhinobatos cemiculus* is likely not common or exploited in the waters of Cape Verde (Diop & Dossa 2011).

Little information about the status of *R. cemiculus* was available throughout the rest of this species' Atlantic range. From January 2009 to December 2010, *R. cemiculus* was not recorded in a study of landings by artisanal fishers based in the Ghanaian villages of Ahwaim and Elmina (Nunoo & Asiedu 2013). *Rhinobatos cemiculus* is present throughout Gabonese coastal waters (G. De Bruyne, Wildlife Conservation Society, Mayumba, pers. comm. to B. Newell, NMFS, 26 June, 2016), and it was reported as

bycatch from March 2013 to May 2015 during a study of artisanal fisheries around Mayumba, Gabon (De Bruyne 2015). No information on this species was available from Ghana and Gabon prior to these periods of study. We found no data for *R. cemiculus* in the following countries with coastline in this species' range: Liberia, Cote d'Ivoire, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, São Tomé and Príncipe, Republic of the Congo, Democratic Republic of the Congo, and Angola.

### **Summary of Factors Affecting the Two Guitarfish Species**

Available information regarding historical, current, and potential threats to these two guitarfishes was thoroughly reviewed (see Newell (2016)). We find that the main threat to these species is overutilization for commercial purposes. This threat is exacerbated by both species' reproductive behavior. Mature adults, including near-term pregnant females, congregate in shallow waters to breed and give birth. This behavior is well understood and exploited by fishers throughout these species' ranges and exposes both species to capture by most demersal fishing gear types (Diop & Dossa 2011; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012). Although information on these species' age structure and reproductive capacity is incomplete, it is likely that their reproductive capacity, which may be high compared to some other elasmobranchs, but low compared to most fished species, increases the threat of commercial overutilization to both species. We find that current regulatory mechanisms contribute to the extinction risk of both species because they are inadequate to protect these species from further overutilization. In addition, pollution and development that modifies coastal habitat may be a threat to these species' survival, although the specific effects of these threats are not well studied, so there is significant uncertainty regarding the contribution of pollution and coastal

development to the extinction risk of these guitarfishes. We summarize information regarding these threats and their interactions below, with species-specific information where available, and according to the factors specified in section 4(a)(1) of the ESA. Available information does not indicate that recreational fishing, disease, predation, or other natural or manmade factors are operative threats on these species; therefore, we do not discuss these factors further in this finding. See Newell (2016) for a full discussion of all ESA section 4(a)(1) threat categories.

*Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range*

Both *R. rhinobatos* and *R. cemiculus* have likely been extirpated from the northwestern Mediterranean. *Rhinobatos rhinobatos* has likely been extirpated from the Mediterranean coasts of Spain and France, as well as the Tyrrhenian, Ligurian, and Adriatic Seas (Bertrand *et al.*, 2000; Capapé *et al.*, 2006; Medits 2016a). *Rhinobatos cemiculus* may never have occurred in the Mediterranean waters of France, but it has been extirpated from the Ligurian and Tyrrhenian Seas, the Balearic Islands, and possibly the Adriatic (it is uncertain if it ever occurred there) (Akyol & Capapé 2014; Medits 2016a; Notarbartolo di Sciara *et al.*, 2007a). Throughout the area where both species have been extirpated, we found almost no information on the life-history of either species, including no mention of the presence of different maturity stages or pregnant females. Based on the lack of available information, it appears that both species were rare throughout much of the area where they have been extirpated, with the exception of the Balearic Islands and the waters off Sicily.

Around the Balearic Islands, both *R. rhinobatos* and *R. cemiculus* were frequently observed until at least the early 20<sup>th</sup> century (Notarbartolo di Sciara *et al.*, 2007a;

Notarbartolo di Sciara *et al.*, 2007b). In the Tyrrhenian Sea, especially around Sicily, *Rhinobatos* spp. was common in commercial trawls in the northern Tyrrhenian as late as the 1960s (Doderlein 1884; Fowler & Cavanagh 2005; Psomadakis *et al.*, 2009). Both species were present daily at the Palermo (northwest Sicily) fish market in the late 19<sup>th</sup> century, where *R. rhinobatos* was likely more common than *R. cemiculus* (Doderlein 1884). The seasonal influx of *R. rhinobatos* in Sicilian waters (which may also apply to *R. cemiculus*) described by Doderlein (1884) is similar to the seasonal congregation of breeding adults reported in other portions of both species' ranges.

Additionally, Doderlein (1884) reported specimens of *R. cemiculus* that were 170, 180, and 230 cm TL (the largest being male), indicating that these individuals were likely mature. However, there was no discussion of pregnant females, reproduction, or how *R. rhinobatos* and *R. cemiculus* used these areas, so there is significant uncertainty regarding how the loss of the populations in Sicilian and Balearic waters, as well as the loss of populations in the rest of the northwestern Mediterranean, could contribute to the extinction risk of either species.

Although we found no other evidence of extirpations, the best available information indicates significant declines of elasmobranchs in West Africa, with *R. rhinobatos* and *R. cemiculus*, which were once common, becoming scarce. This region has already seen the total or near extirpation of sawfishes and the African wedgefish (Diop & Dossa 2011; Fowler & Cavanagh 2005). Given the similarity of these species (relatively large, dorsoventrally flattened, coastal elasmobranchs) to *Rhinobatos* spp., and the significant fishing pressure in the area, it is reasonable to conclude that *R. rhinobatos*



and *R. cemiculus* could face the threat of range curtailment in West Africa in the foreseeable future.

Throughout these species' ranges there is not much information available on the species-specific threats to *R. rhinobatos* and *R. cemiculus* habitat. However, in the Mediterranean, the decline of elasmobranch diversity and abundance is well documented, and is attributed in part to habitat destruction and pollution (Carlini *et al.*, 2002; Cavanagh & Gibson 2007; Melendez & Macias 2007; Psomadakis *et al.*, 2009). Mediterranean ecosystems have been shaped by human actions for millennia, perhaps more so than anywhere else on earth (Bradai *et al.*, 2012). Large species that use coastal habitat, especially those species that use these areas as nursery areas (e.g., *R. rhinobatos* and *R. cemiculus*), are particularly vulnerable in areas of intensive human activity (Cavanagh & Gibson 2007). The semi-enclosed nature of the Mediterranean increases the effects of pollution and habitat degradation on elasmobranch species and, as a result, the status of elasmobranchs may be worse in the Mediterranean than in other regions of the world (Melendez & Macias 2007; Séret & Serena 2002).

The Mediterranean Sea receives heavy metals, pesticides, excess nutrients, and other pollutants in the form of run-off (Melendez & Macias 2007; Psomadakis *et al.*, 2009). As long-lived predators, large elasmobranchs are significant bioaccumulators of pollutants (Melendez & Macias 2007). No information is available on the bioaccumulation of pollutants in the tissues of *Rhinobatos* spp. in the Mediterranean Sea, but other elasmobranchs, such as the spiny dogfish and the gulper shark, have shown high concentrations of toxins (Melendez & Macias 2007). A study of the accumulation of trace metals cadmium, copper, and zinc in fish along the Mauritanian coast showed low levels

of bioaccumulation of these metals in the tissues of *R. cemiculus* compared to bony fishes. It should be noted that three specimens of *R. cemiculus* were the only elasmobranchs collected in this study, and that, in contrast with the Mediterranean, the trace metals in the area of the study are thought to be primarily natural in origin (Sidoumou *et al.*, 2005).

Pollution, habitat degradation, and development in the coastal zone are also of concern in some African countries within these species' ranges (Diop & Dossa 2011; Kasisi 2004). While pollution is a concern in portions of both species' ranges, the effects of pollution on elasmobranchs and marine food webs are not well understood (Melendez & Macias 2007). We found no information describing how marine pollution affects *Rhinobatos* spp., so the contribution of marine pollution to these species' extinction risk is unknown.

The significant demersal trawling that occurred and continues to occur throughout the Mediterranean range of the two *Rhinobatos* species (Edelist 2014; FAO 2016b; Sacchi 2008), and to a lesser extent throughout their Atlantic range (Diop & Dossa 2011), has likely altered seafloor morphology (Puig *et al.*, 2012). In some important reproductive areas for *Rhinobatos* spp., such as the southeast coast of Turkey, intense trawling pressure has occurred over recent decades in depths less than 70 m (Çiçek *et al.*, 2014). However, we found no information that this habitat modification has had a direct effect on the abundance or distribution of these two species. Additionally, trawl fishing within three nautical miles of the Mediterranean coast has been prohibited since 2012 in order to protect coastal elasmobranch species (FAO 2016e).

Some information shows that these species are sensitive to habitat modification. Psomadakis *et al.*, (2009) attributed the extirpation of *Rhinobatos* spp. from the northwestern Mediterranean to the combination of centuries of human development and fishing pressure. Additionally, both species returned to the Northern and Southern Tunis Lagoons in Tunisia after large scale restoration of the area (Mejri *et al.*, 2004). Prior to restoration, the lagoons had undergone significant anthropogenic hydrological modification and been extremely polluted from sewage input and industrial waste (Noppen 2003). After restoration was completed in 2001, *R. cemiculus* was recorded for the first time, and *R. rhinobatos*, which had previously been rare, became common (Mejri *et al.*, 2004). Based on the available information, it is likely that pollution and modification of habitat contribute to the risk of extirpation of both species from portions of their range. However, because of the lack of information on the pollution and habitat modification throughout their entire ranges, and because there is no information on the direct effects of these threats to either species, the degree of the contribution of these factors to the extinction risk of both species is unknown at this time.

#### *Overutilization for Commercial Purposes*

The primary threat to both of these species is commercial overutilization. This threat is difficult to quantify, as fisheries data on elasmobranch landings throughout both species' ranges has been drastically underreported (Clarke *et al.*, 2006; Diop & Dossa 2011; FAO 2016a). When elasmobranch catches have been reported, it was generally not reported at the species level (Bradai *et al.*, 2012; Echwikhi *et al.*, 2012). However, based on surveys of fishers' knowledge, museum records, and analysis of scientific surveys of the northern Mediterranean, it appears that commercial overutilization has been the main

driver of both species' extirpation from the northwestern Mediterranean, and their decline in abundance in other regions (Baino *et al.*, 2001; Bertrand *et al.*, 2000; Capapé *et al.*, 2006; Carlini *et al.*, 2002; Diop & Dossa 2011; Echwikhi *et al.*, 2012; Psomadakis *et al.*, 2009).

The overutilization of these species is not concentrated in one area or fishery. Throughout portions of their ranges, they are, or were until recently, targeted for their fins, meat, or both (G. De Bruyne, Wildlife Conservation Society, Mayumba, pers. Comm. to B. Newell, NMFS, 26 June, 2016; Diop & Dossa 2011; Echwikhi *et al.*, 2012). Throughout their ranges, there is great diversity in fisheries and in the types of gear used (Diop & Dossa 2011; FAO 2016b). As bycatch, *R. cemiculus* and *R. rhinobatos* are particularly exposed to fishing pressure from demersal trawl, gillnet, and longline fisheries (Cavanagh & Gibson 2007; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012; FAO 2016d).

In West Africa, both species have been targeted by the shark fin fishery, which has led to both species becoming scarce in this region after a few decades of targeted fishing (Diop & Dossa 2011; Fowler & Cavanagh 2005). The explosion of the Chinese middle class at the end of the last century led to a rapid increase in demand for shark fin soup, a traditional Chinese dish desired for its alleged tonic properties and, most importantly, because it has served as an indicator of high societal status for centuries. Shark fins are one of the highest value seafood products in the world, especially compared to shark meat, which is widely regarded as low value (Dulvy *et al.*, 2014; Hareide *et al.*, 2007b). The value and quality of shark fins are judged by the thickness

and length of the ceratotrichia, or fin needles, and based on this valuation system, guitarfishes have some of the most valuable elasmobranch fins (Hareide *et al.*, 2007b).

The majority of the commercial harvest information available for these species in the Atlantic pertains to the FAO Subregional Fisheries Commission (SRFC) member countries: Mauritania, Senegal, Gambia, Guinea, Guinea-Bissau, Sierra Leone, and Cape Verde. Outside of the SRFC countries, we also found information on fisheries in Morocco, Ghana, and Gabon. We found no data for either species in the following countries, which have Atlantic coastline that is considered in one or both species' ranges: France, Spain, Portugal, Liberia, Cote d'Ivoire, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, São Tomé and Príncipe, Republic of the Congo, Democratic Republic of the Congo, and Angola.

In the SRFC region, elasmobranchs, including *R. rhinobatos* and *R. cemiculus*, have historically been extremely abundant (Diop & Dossa 2011). Prior to the 1970s, elasmobranchs were primarily taken as bycatch and processed for sale to meet local demand. There was a small market for salted and dried elasmobranch meat, based in Ghana that fueled trade for elasmobranch bycatch through the SRFC region, including for guitarfishes caught in Senegal and Gambia. However, compared to other fishery products, shark meat had very low value, so there was little economic incentive to develop a targeted fishery. Elasmobranch fishing in the SRFC region began to grow in Senegal and Gambia in the 1970s, and then, fueled by the growing demand for shark fins, developed into a robust and unsustainable shark fishery by the early 1980s. To supply the shark fin export industry, specialized shark fishing teams became increasingly common in the SRFC region. These teams of artisanal fishers migrate into new areas along the

west coast of Africa as local elasmobranch resources become locally overexploited (Diop & Dossa 2011; Ducrocq & Diop 2006). As the fishery became more migratory, the increase in fishing effort drove the need to maximize profits, further encouraging the unsustainable, wasteful practice of finning (Diop & Dossa 2011; Tous *et al.*, 1998). In recent decades the demand for elasmobranch meat, which was once considered a low value product, has grown, which provided additional economic incentive for growth in the shark fishery in the SRFC region (Clarke *et al.*, 2007; Dent & Clarke 2015).

The SRFC subregion's international elasmobranch fishing industry is composed of industrial and artisanal fishing vessels, coastal processing facilities, and a robust trade network. Vessels are owned both by local fishermen and foreign investors (primarily Spanish). Owners have financed improvements in fishing technology (e.g. more advanced boats and nets) as yields have declined. Guitarfishes are also targeted from shore, such as by fishers using beach-based “guitar lines” in Mauritania. In the SRFC region, elasmobranch fishing effort steadily increased since the 1970s, with landings peaking in the early 2000s, and then showing a significant and ongoing drop. Throughout the region (with the exception of Cape Verde, an offshore island nation where neither species are abundant), “resources seem to be fully exploited, if not overexploited, for almost all selachian<sup>1</sup> species” (Diop & Dossa 2011; Ducrocq & Diop 2006). Because *Rhinobatos* spp. have also been heavily targeted for their highly valuable fins in the SRFC region for decades, this status of full or overexploitation likely also applies to guitarfishes in the SRFC region (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016).

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<sup>1</sup> i.e. sharks

In the SRFC region, Diop and Dossa (2011) report the importance of one or both *R. rhinobatos* and *R. cemiculus* to local elasmobranch fisheries in all member countries except Gambia and Cape Verde. Fishers throughout this region time their fishing activities with the migration patterns and reproductive behavior of both species, targeting guitarfishes when they return to the shallows to give birth (Ducrocq & Diop 2006). In Mauritania, *R. cemiculus* is one of the three elasmobranch species taken in highest numbers (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). In Guinea-Bissau and Guinea, *R. cemiculus* is listed as one of the few species listed as “most important landings” and “taken in the highest numbers,” respectively. In Sierra Leone, “*Rhinobatos* spp. and *Dasyatis* spp. (stingrays) are found in the highest numbers, both in terms of weight and number.” In Senegal, both species, along with coastal sharks, are the main fisheries targets (Diop & Dossa 2011). Diatta *et al.*, (2009) also found that guitarfishes were some of the primary elasmobranchs targeted by the robust artisanal fishery in Senegal, where finning is prevalent, and these fishes were caught when they returned to shallow waters to breed.

While the shark fin industry has been the major driver for elasmobranch declines in the SRFC countries, it is not the sole driver of overutilization of *R. rhinobatos* and *R. cemiculus*. The region has also experienced heavy population shifts in recent decades, primarily from people migrating to the coast, and this has put increased demand on all marine resources. Additionally, fisheries reporting in the area is inadequate, and there is significant bycatch in the industrial fishing industry (Diop & Dossa 2011). In addition to reported harvest, since 1980, the African Atlantic coast has experienced extremely high rates of illegal, unreported, and unregulated (IUU) fishing, including in shallow areas

where both guitarfish species are vulnerable to capture (Agnew *et al.*, 2009; Greenpeace 2015).

As a result of the decades of sustained and widespread targeting of guitarfishes and other elasmobranchs in the SRFC region, combined with the increasing overall fishing effort, there has been an overall decrease in catch, with some species, such as sawfishes, lemon sharks and the African wedgefish, almost completely disappearing (Diop & Dossa 2011), and some species, including guitarfishes, becoming scarce (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016; Ducrocq & Diop 2006). Based on survey and fisher interview data collected by the IUCN Guinea-Bissau Programme and the National Centro de Investigacao Pesqueira Applicada, both guitarfishes were the main targets of specialized fishing teams in Guinea-Bissau, and landings had declined substantially as of the late 1990s (Fowler & Cavanagh 2005; Tous *et al.*, 1998). This fishing pressure also drove down the average size of *R. rhinobatos* landed (Notarbartolo di Sciara *et al.*, 2007b). According to unpublished data from the Senegalese Ministry of Maritime Economy and International Maritime Transportation, guitarfish landings in Senegal have decreased from 4,050 t in 1998 to 821 t in 2005, with a reduction in the overall size of specimens landed (Notarbartolo di Sciara *et al.*, 2007a). Diop and Dossa (2011) reported that, because of overexploitation in the Banc d'Arguin National Park in Mauritania, 95 percent of landed *R. cemiculus* were smaller than their size-at-maturity, which was likely impacting their reproductive capacity. A ban on shark fishing in Banc d'Arguin National Park has allowed guitarfishes to recover within the park's boundaries, but both species are still



heavily targeted outside of the park (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016).

While Diop and Dossa (2011) characterized one or both species as being important, or landed in high numbers, in fisheries in Senegal, Mauritania, and Guinea-Bissau, the authors did not state a time period for these characterizations. As just discussed, significant declines in the overall abundance of guitarfishes have been reported in all of these countries (Diop & Dossa 2011; M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016; Fowler & Cavanagh 2005; Notarbartolo di Sciara *et al.*, 2007a; Notarbartolo di Sciara *et al.*, 2007b) as well as substantial reported declines in landings of larger, more fecund, individuals of both species in Guinea-Bissau, Senegal (Notarbartolo di Sciara *et al.*, 2007a; Notarbartolo di Sciara *et al.*, 2007b) and Mauritania (Diop & Dossa 2011). Similar trends are likely in Guinea and Gambia (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). Because of the migratory fisheries in the SRFC countries, and the reported scarcity of guitarfishes throughout the area (Diop & Dossa 2011), it is reasonable to assume similar declines have occurred or will occur in Sierra Leone.

In Morocco, both species are likely rare; they are not targeted, but at least *R. rhinobatos* occurs as demersal trawl bycatch (Notarbartolo di Sciara *et al.*, 2007b). We found no information on the commercial exploitation of *Rhinobatos* spp. in Morocco but, in general, Moroccan fisheries are likely in a state of overexploitation after years of intense and extremely underreported fishing activity by foreign vessels (Belhabib *et al.*, 2012b; Jouffre & Inejih 2005). In Ghana, where the artisanal fishing industry is an important and entrenched part of the economy, the demand for dried and salted

elasmobranch meat was an early driver of the regional elasmobranch industry (Diop & Dossa 2011; Ducrocq & Diop 2006; Nunoo & Asiedu 2013), and *R. rhinobatos*, but not *R. cemiculus*, was recently reported in artisanal fisheries landings (Nunoo & Asiedu 2013). The demersal fisheries resources of Ghana have been “operating under stress during the last decades” (Nunoo & Asiedu 2013). Artisanal fishers from Ghana, as well as from neighboring Togo and Benin, have migrated to other countries’ fishing grounds along the west coast of Africa, likely because fishing grounds in these fishers’ countries have been overexploited, overcrowded, or both (De Bruyne 2015; Diop & Dossa 2011).

In Gabon, both species are present in coastal waters, and are targeted by artisanal fishers using specialized gear for their meat and to supply the black market fin trade, which is connected to the West African fin trade. Both species are also targeted by recreational fishers (G. De Bruyne, Wildlife Conservation Society, Mayumba, pers. comm. to B. Newell, NMFS, 26 June, 2016). In the area of the village of Mayumba in southwest Gabon, *R. cemiculus* was the most frequent batoid species captured by artisanal fishers from 2014 to 2015 (*R. rhinobatos* is not mentioned). This catch included no mature females, which was noted by the author as an indicator that fishing has had a negative impact on the reproductive capacity of this species in the area. Although the author noted the absence of pregnant females, he did not discuss whether pregnant females had previously been recorded in the area. “Sea fishing” began around Mayumba in the 1950s with the arrival of fishers from Ghana, Benin, and Togo, many of whom had been crowded out of fishing grounds in the Republic of the Congo. Until recently, this area experienced unsustainable industrial and IUU fishing. In this area, there has also long been subsistence fishing by locals in the Banio Lagoon, where sharks and rays were

prevalent 30 years ago, but today are almost impossible to catch (De Bruyne 2015).

Based on this information, it appears that overutilization has caused a decline in abundance and reproductive capacity of *R. cemiculus* in at least part of Gabonese waters.

In contrast with the relatively recent and rapid exploitation of guitarfishes in the African Atlantic, primarily driven by the demand for shark fins, finning is not widely practiced in the Mediterranean (Hareide *et al.*, 2007a; Serena 2005). Instead, in the Mediterranean these species have been impacted by the centuries of sustained fishing pressure coupled with recent increases in fishing effort and fishing technology advances (Ferretti *et al.*, 2008; Psomadakis *et al.*, 2009). As evidence of both species' decline, *R. rhinobatos* and *R. cemiculus* have been listed on Annex II: List of Endangered or Threatened Species of the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol) of the Barcelona Convention since 2012. The SPA/BD Protocol prohibits the landing of these species in the Mediterranean and requires that they “must be released unharmed and alive to the highest extent possible.” We found no studies on the survival rates of guitarfishes after being released from fishing gear interactions, so the potential of this requirement to reduce fishing mortality is unknown.

General Fisheries Commission for the Mediterranean (GFCM) recommendation GFCM/36/2012/3, which is associated with the SPA/BD Protocol (see *Inadequacy of Existing Regulatory Mechanisms*), also prohibits trawling within three nautical miles of the shoreline, greatly reducing the likelihood that these coastal fish will be caught as bycatch. Recommendation GFCM/36/2012/3 also prohibits finning and the landing of elasmobranchs without their heads and skins, thus protecting these fish from illegal sale

(FAO 2016e)(Hareide *et al.*, 2007a; Serena 2005). We found no information on the current level of IUU fishing on these species in the Mediterranean, so it is difficult to assess the impact of these prohibitions. Recent information from Tunisia, Lebanon, and Egypt indicates that the fisheries in these countries are inadequately regulated (Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012; Lteif 2015; A. Marbourk, NOS, pers. comm. to B. Newell, NMFS, 21 July, 2016; Samy-Kamal 2015).

Regardless of the efficacy of the SPA/BD Protocol prohibitions, the historical fishing pressure on *R. rhinobatos* and *R. cemiculus* has driven declines in abundance throughout much of the Mediterranean (Baino *et al.*, 2001; Bertrand *et al.*, 2000; Capapé *et al.*, 2006; Diop & Dossa 2011; Notarbartolo di Sciara *et al.*, 2007a; Notarbartolo di Sciara *et al.*, 2007b; Psomadakis *et al.*, 2009). The area has a long history of fishing pressure, which has not abated in recent decades (Ferretti *et al.*, 2008). Better technology and increased fishing effort, including increased benthic continental shelf and slope trawling over the last 50 years, has resulted in the decline of many elasmobranch species (Bradai *et al.*, 2012). In the northwestern Mediterranean, sustained and intensive fishing pressure has been a main driver of the extirpation of *Rhinobatos* spp. (Bradai *et al.*, 2012; Capapé *et al.*, 2006; Psomadakis *et al.*, 2009; Sacchi 2008). The highest concentration of fishing vessels in the Mediterranean occurs in the Eastern Mediterranean Sea and the Ionian Sea GFCM subregions, which make up the majority of the current Mediterranean ranges of *Rhinobatos* spp. Turkey, which appears to have some of the largest concentrations of *R. cemiculus* along its southern coast, also has the most fishing vessels with 16,447 vessels (17.74 percent of vessels in the Mediterranean). However, some of these vessels fish in

the Black Sea, where neither species is found, or in the Aegean Sea, where these species are rare (FAO 2016b).

Between 1970 and 1985, reported Mediterranean and Black Sea chondrichthyan landings (which includes both guitarfishes) grew from 10,000 t to 25,000 t, and then declined to about 7,000 t annually in 2008 despite growing fishing effort (Bradai *et al.*, 2012; Cavanagh & Gibson 2007; Hareide *et al.*, 2007). During this time, Tunisia and Turkey were two of the most prolific Mediterranean elasmobranch fishing countries. As of 2007, there were six Mediterranean elasmobranchs affected by targeted fisheries. Historically, many more species had been targeted or landed in large quantities, but this number has been reduced because these fisheries are no longer commercially viable (Cavanagh & Gibson 2007; FAO 2016d; Ferretti *et al.*, 2008). In a few areas in the Mediterranean, *R. rhinobatos* and *R. cemiculus* are or were targeted or considered a valuable secondary catch. Additionally, the global demand for elasmobranch meat has grown rapidly in recent decades, with the reported production of meat and fillets growing from approximately 40,000 tons in 1985 to 121,641 tons in 2004 (Clarke *et al.*, 2007; Dent & Clarke 2015), potentially providing economic incentive to retain these species as targeted or incidental catch.

The primary Mediterranean area where *R. rhinobatos* and *R. cemiculus* have been fished is the waters of Tunisia, where seasonal artisanal fishers target elasmobranchs with gillnets and longlines when they move into shallow waters in the spring and summer (Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012). *Rhinobatos* spp. meat is sold in local markets and the skin is used for drumheads by local players (Capape & Zaouali 1994). In Tunisian waters *R. cemiculus* is landed in greater numbers than *R. rhinobatos* (Capape &

Zaouali 1994; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012), although species-specific data and reliable discard data are largely unavailable (Echwikhi *et al.*, 2012). Data on fishing vessels are underreported, especially in Tunisia and Morocco. However, based on the available data, the Tunisian fleet is composed of 12,826 reported vessels, or 14.91 percent of the 92,734 vessels reported in the Mediterranean and Black Sea, making it the third largest Mediterranean and Black Sea fishing fleet. Since 1970, when total fisheries landings in Tunisia were about 25,000 tons, there has been a steady increase in landings, reaching an average of 101,400 t from 2000 to 2013. Additionally, Tunisia has one of the youngest fishing fleets in terms of vessel age, indicating a relatively recent increase in fishing capacity. As is the case throughout the Mediterranean, the vast majority of the Tunisian fishery is composed of artisanal vessels (FAO 2016b). While elasmobranch landings have dropped overall in southern Tunisia (Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012), an assessment from the Workshop on Stock Assessment of Selected Species of Elasmobranchs in the GFCM area found that the southern Tunisian *R. cemiculus* stock was actually underfished from 2001-2007 (GFCM:SAC 2012).

Targeted fishing for guitarfishes in Tunisia likely began in the 1970s to mid-1980s (Capapé *et al.*, 2004; Echwikhi *et al.*, 2013). The majority of Tunisian elasmobranch catches have been from the Gulf of Gabès (Bradaï *et al.*, 2006; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012), where general elasmobranch landings and batoid landings steadily increased during the 1990s, peaked in 2002, and decreased from 2003 to 2008 (trend data are not available after 2008) (Echwikhi *et al.*, 2012). Guitarfishes were targeted with special gillnets called “garracia,” with catches peaking in the spring and summer when females move into shallow waters to gestate and give birth. Adults,

juveniles, and neonates have also been caught as bycatch in demersal fish and shrimp trawls (Bradaï *et al.*, 2006). In a study of elasmobranch gillnet fishing in the Gulf of Gabès from 2007 to 2008, *R. cemiculus* was the most abundant elasmobranch caught. *R. cemiculus* and *R. rhinobatos* were 52 percent and 6.81 percent of the total elasmobranch catch, respectively. Female *R. cemiculus* (40 percent mature) and *R. rhinobatos* (48 percent mature) were more common than males. The authors of this study noted that *R. cemiculus* is particularly susceptible to capture in bottom gillnets because of its shape and schooling behavior (Echwikhi *et al.*, 2012).

In recent years, Gulf of Gabès fishermen who had targeted grouper using demersal longlines have shifted to targeting elasmobranchs as grouper abundance has declined, although in this fishery elasmobranchs were still reported as bycatch (Echwikhi *et al.*, 2013). The first study of elasmobranch catches in this longline fishery, conducted from 2007 to 2008, found that *R. cemiculus* was the most abundant elasmobranch, with *R. cemiculus* and *R. rhinobatos* composing 31.7 percent and 11.2 percent of the elasmobranch catch, respectively. Mature, pregnant females dominated the *R. cemiculus* catch, while males and females were about equal for *R. rhinobatos*, with slightly more mature individuals than juvenile individuals caught. This study found that longline fishing effort during this time period was “considerable” (Echwikhi *et al.*, 2013). Enajjar *et al.*, (2008) found a decrease in the overall TL and TL at 50 percent maturity for male and female *R. rhinobatos* in southern Tunisia, compared to the results reported by Capape *et al.*, (1975, 1997). The reported decrease in *R. rhinobatos*, compared to the relatively recent GFCM:SAC (2012) stock assessment that found *R. cemiculus* was underfished in this area, may indicate that only the Tunisian population of *R. rhinobatos* is experiencing

levels of fishing pressure that contribute to its risk of extinction. There is significant uncertainty with this conclusion because of the limited information available.

Just east of the Tunisian border, there are artisanal gillnet and longline elasmobranch fisheries based in Tarwah, Libya, that, as of 2000, primarily targeted sharks of the family *Carcharhinidae*, with guitarfishes and angelsharks retained as associate target species (Lamboeuf *et al.*, 2000). This information was reported in Appendix VI of Lamboeuf *et al.*, (2000), which provided an example of the project's database printout, rather than a complete picture of guitarfish retention in Libya, and we found no additional information on guitarfish catch in this country. According to the RAC/SPA (2005) research proposal, guitarfishes have been traditionally consumed in Libya, and some species that have declined in the greater Mediterranean, including guitarfishes, are still relatively common in Libyan waters. The effects of targeted fishing in Libya on the extinction risk of these species are unknown at this time.

Along the eastern Mediterranean, guitarfishes are illegally targeted in Lebanon by artisanal fishers. From December 2012 to October 2014, *R. rhinobatos* was the most common elasmobranch in Lebanese fisheries catches, followed by *R. cemiculus*, and both have had significant economic value. Fishing pressure in Lebanon is greatest in the north, where it has already impacted elasmobranch diversity (Lteif 2015). In a study of elasmobranch exploitation in Syria in the early 2000s, *R. cemiculus* was characterized as a “very economically important species being caught in plentiful quantities and highly consumable,” whereas *R. rhinobatos* was characterized as a “moderate economically important species either for being caught in little quantities with high efforts in fishing, or for their little demand for human consumption. Or maybe for both reasons” (Saad *et al.*,



2006). It is unclear if *R. cemiculus* is more common or if there is a higher demand for its meat over that of *R. rhinobatos*, but these data indicate that both species were either targeted or welcomed as secondary catch in Syria. Overall fisheries landings in Lebanon and Syria increased since the 1970s, but their reported landings only make a small fraction of the overall Mediterranean catch (FAO 2016c).

Throughout their entire Mediterranean ranges, *R. cemiculus* and *R. rhinobatos* have long been exposed to pressure as bycatch (Bradai *et al.*, 2012). *Rhinobatos cemiculus* is one of the most commonly landed elasmobranchs in İskenderun Bay, Turkey (and more abundant than *R. rhinobatos*) (Başusta *et al.*, 2012; Keskin *et al.*, 2011), where the coastal area is heavily fished, exposing mature, breeding individuals to capture when they migrate to shallow waters (Başusta *et al.*, 2008). *Rhinobatos* spp. are not commercially important species in Turkey (Keskin *et al.*, 2011), but Çek *et al.*, (2009) reported that *R. rhinobatos* has been exploited by bottom trawlers in İskenderun Bay since 1990, and it is consumed locally. The same is likely true for *R. cemiculus*. After Egypt, Turkey has the highest number of registered trawlers in the Eastern Mediterranean, with 599 vessels (FAO 2016b). While some of these trawlers are concentrated in the Black Sea (FAO 2016b), the southeastern waters of Turkey, including İskenderun Bay, have been intensely fished for decades and have shown obvious signs of decline in biodiversity and fish abundance (Çiçek *et al.*, 2014).

In Egypt, Mediterranean fisheries landings have generally been growing since the 1970s, as fishing technology has advanced and fishing effort has increased. There have been periods where landings dropped despite continued increases in fishing efforts (FAO 2016c; Samy-Kamal 2015). As a result there has been an increase in the landings of and

demand for cartilaginous fishes bycatch, with guitarfishes (not reported at the species level) composing the majority of these landings, primarily as bycatch from shrimp trawls. Prior to 2005, shark and ray bycatch were usually discarded. From 2005 to 2006, landings of cartilaginous fishes jumped from around 500 tons to over 3,000 tons. Over the last 10 years, this production has remained high, although recently it decreased from over 3,000 tons annually in 2010 and 2011, to 1,843 tons in 2014 in spite of sustained fishing effort (A. Marbourk, NOS, pers. comm. to B. Newell, NMFS, 21 July, 2016). Most of the landings in Egypt occur in the Nile Delta region, which is highly suitable for trawling and includes Alexandria, where *R. rhinobatos* is known to aggregate in shallow waters to give birth (Abdel-Aziz *et al.*, 1993; Samy-Kamal 2015). Within this region, almost 80 percent of the cartilaginous fish production is landed at two ports, Alexandria and Borg El Burullus (A. Marbourk, NOS, pers. comm. to B. Newell, NMFS, 21 July, 2016). Wild-caught fisheries in Egypt have been regulated for decades, but these regulations have been under-enforced, as the government has focused on developing the booming aquaculture industry. Additionally, regulations have not been updated to reflect the GFCM recommendations, which are apparently also not being enforced. This lack of enforcement has resulted in rampant IUU fishing in Egyptian waters, including unsustainable trawling and the use of illegal fishing gear (Samy-Kamal 2015). The lack of fishing regulations and enforcement has resulted in widespread declines in Egyptian fisheries, including in elasmobranch populations, and is likely also affecting neighboring countries, as Egyptian fishers are known to illegally fish in Libyan waters (A. Marbourk, NOS, pers. comm. to B. Newell, NMFS, 21 July, 2016).

In the waters of Cyprus, there was a large increase in coastal trawl fishing effort in the late 1980s. From 1985 to 1990, there was a spike in elasmobranch capture, primarily of dogfish, skates, and rays, followed by a sharp decline in capture after 1990. In response to a government fishing permit buy-back program, trawling effort has reduced substantially since the early 2000s (Hadjichristophorou 2006). In Israel, reported landings are low, approximately at the levels reported for Syria and Lebanon, and have been decreasing for decades (FAO 2016c), although Edelist (2014) considered the soft-bottomed habitat off Israel to be under intensive fishing pressure. Guitarfish are caught as bycatch by local fishermen, but there is little market for elasmobranch products because they are not kosher, thus their consumption is forbidden by Jewish law. Elasmobranch species are primarily caught as bycatch by local fishermen using trawls and bottom long-lines, and also purse seines and trammel nets (Golani 2006). *Rhinobatos rhinobatos* are considered common in the area, while *R. cemiculus* is prevalent but less abundant than *R. rhinobatos* (Edelist 2014; Golani 2006).

The magnitude of the threat to *R. rhinobatos* and *R. cemiculus* from commercial overharvest is impossible to fully assess because of the lack of fisheries data, especially at the species level, from all countries in which these species occur. However, the best available information shows 1) fishery driven extirpation of *Rhinobatos* spp. from the northwestern Mediterranean (Capapé *et al.*, 2006; Psomadakis *et al.*, 2009); 2) decreasing elasmobranch landings due to decades of technological advances and increased fishing effort (Cavanagh & Gibson 2007; Diop & Dossa 2011; Melendez & Macias 2007; Séret & Serena 2002); 3) substantial decreases in the abundance of both species in West Africa (Diop & Dossa 2011); 4) considerable fishing effort in demersal fisheries concentrated in

coastal areas where both species, especially reproductive individuals, are particularly vulnerable to capture (Çiçek *et al.*, 2014; Diop & Dossa 2011; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012; Samy-Kamal 2015); 5) sustained targeting of these species as commercially important species (Diop & Dossa 2011; Echwikhi *et al.*, 2013; Echwikhi *et al.*, 2012; Lteif *et al.*, 2016; Saad *et al.*, 2006); and 6) evidence of fishery driven size reduction (Diop & Dossa 2011; Enajjar *et al.*, 2012). Based on this information, we conclude that overharvest from industrial and artisanal commercial fisheries is contributing significantly to the extinction risk of both *R. rhinobatos* and *R. cemiculus* throughout their ranges.

#### *Inadequacy of Existing Regulatory Mechanisms*

There are some regional and national regulatory mechanisms that impact the conservation status of these species. In 2009, both species were listed on SPA/BD Protocol Annex III: List of Species Whose Exploitation is Regulated, which was adopted under the Barcelona Convention in 1995 (Bradai *et al.*, 2012). In 2012, both species were uplisted to Annex II: List of Endangered or Threatened Species (S. de Benedictis, GFCM Secretariat, pers. comm. to B. Newell, 12, May, 2016). The protocol charges all parties with identifying and compiling lists of all endangered or threatened species in their jurisdiction, controlling or prohibiting (where appropriate) the taking or disturbance of wild protected species, and coordinating their protection and recovery efforts for migratory species, among other measures that are likely less relevant to these species (RAC/SPA 1996). Currently, all coastal Mediterranean countries where these species occur are contracting parties to the SPA/BD Protocol (European Commission 2016). Further, since 2012, both species have been protected by GFCM recommendation

GFCM/36/2012/3. This recommendation prohibits the finning of elasmobranchs or the beheading or skinning of elasmobranchs before landing, and it prohibits trawling in the first three nautical miles off the coast or up to the 50 m isobaths (whichever comes first). Additionally, Annex II elasmobranch species cannot be retained on board, transshipped, landed, transferred, stored, sold or displayed or offered for sale, and must be released unharmed and alive to the extent possible (GFCM/36/2012/3). Any capture of these species in the GFCM area of competence, which includes all national and high seas waters of the Mediterranean and Black Seas (FAO 2016f), is considered IUU fishing (S. de Benedictis, GFCM Secretariat, pers. comm. to B. Newell, 12, May, 2016).

In the Mediterranean, the efficacy of these and other protections is unclear, but it appears that countries have historically been slow to adopt and enforce the SPA/BD Protocol protections (Serena 2005). Italy, Greece, and Lebanon have promulgated regulations in accordance with the SPA/BD Protocol to protect species listed in Annex II (Bradai *et al.*, 2012; Lteif 2015), Tunisia has restricted the retention of rays and skates less than 40cm, and all cartilaginous fishes are protected in Israel (Bradai *et al.*, 2012). In Lebanon, these regulations are neither being followed nor enforced (Lteif 2015). Historically, monitoring of the Mediterranean fleet has been negligible (Séret & Serena 2002), and the data on cartilaginous fishes have not been reported at the species level (Echwikhi *et al.*, 2012; Serena 2005). Vessel, bycatch, and discard data from artisanal fisheries, which primarily operate along the coast and make up 80 percent of the vessels in the Mediterranean, are difficult to obtain and likely underreported (FAO 2016c, 2016d). Echwikhi *et al.*, (2012) and Echwikhi *et al.*, (2013) describe the nature of artisanal gillnet and longline fisheries in Tunisia and the Mediterranean as “unregulated.”

In Lebanon, Turkey, and Tunisia the artisanal sector makes up well over 80 percent of the total vessels, and no data were available for Syria (FAO 2016c), increasing the likelihood that fisheries in these important portions of *Rhinobatos* spp. range are underregulated and catches are underreported.

In Egypt, which is also an important part of the range of at least *R. rhinobatos*, the wild catch fisheries are underregulated as the government has focused most of its resources on supporting the booming aquaculture industry (Samy-Kamal 2015). This lack of regulation and enforcement has led to widespread overfishing in Egyptian waters, where both guitarfish species have been retained as profitable bycatch species since 2005, and Egyptian fishers are known to illegally fish in Libyan waters because of the overexploited state of local Egyptian fisheries. Additionally, the focus on aquaculture production has resulted in the pollution of coastal brackish lakes, which degrades coastal ecosystems (A. Marbourk, NOS, pers. comm. to B. Newell, NMFS, 21 July, 2016).

In the Atlantic African countries, as in the Mediterranean, artisanal fishing makes up a huge, growing proportion of the fishing activity. Until recently, this fishing sector has lacked species-specific data and strong management or regulations (De Bruyne 2015; Diop & Dossa 2011; Nunoo & Asiedu 2013). Along the Atlantic coast of Africa, all of the SRFC countries have passed regulations that offer some protection to either or both species. Cape Verde, Guinea, Gambia, and Sierra Leone have all banned finning. Mauritania has banned all elasmobranch fishing (except for houndshark) in Banc d'Arguin National Park since 2003. Guinea and Sierra Leone have introduced elasmobranch fishing licenses. Guinea-Bissau dismantled elasmobranch fishing camps in the Bijagos Archipelago and banned elasmobranch fishing in all marine protected areas

(MPAs). Senegal established size limits for *R. cemiculus* (106 cm for males and 100 cm for females). However, all of the SRFC countries lack adequate technical and financial resources for monitoring and management, and regulations at the country level are not very strict and lack regional coordination (Diop & Dossa 2011). Whether these regulatory protections put in place in the SRFC countries are reducing the extinction risk of these species is unknown at this time.

In Gabon, a national marine planning effort called “Gabon Bleu,” which was established in 2012, seeks to improve management of marine resources across different stakeholder groups, including artisanal and industrial fishing. The country’s 2005 Fisheries Code had established regulations that were not being followed, with reported non-compliance including the disconnection of vessel monitoring systems and the use of illegal monofilament nets by artisanal fishers. In 2012, under Gabon Bleu, all fishing activity was suspended, and all fishers who wished to resume work were required to sign an agreement that clearly defined the regulations and required their participation in fisheries research. Several arrests were made as a result of a crackdown on IUU fishing that included increased surveillance (De Bruyne 2015). Additionally, both species are considered “sensitive species” and cannot be targeted by fishers. Unfortunately, these regulations have not eliminated the black market for fins, so guitarfishes are still being targeted by artisanal fishers and illegally finned by demersal trawl fishers (G. De Bruyne, Wildlife Conservation Society, Mayumba, pers. comm. to B. Newell, NMFS, 28 June, 2016). In Mayumba National Park, only artisanal fishers have been allowed to operate, and sharks are no longer targeted (De Bruyne 2015). Recent efforts to improve monitoring of artisanal catches have also been made in Ghana (Nunoo & Asiedu 2013).

Republic of the Congo, which shares Gabon's southern border, banned all shark fishing along its entire coastline in 2001 (Marine Conservation Institute 2016), although we found no information on the enforcement of this ban.

IUU fishing by foreign fleets is also a major challenge for sustainable fisheries management in Africa. The west coast of Africa has experienced some of the highest amounts of IUU fishing in the world for decades (Agnew *et al.*, 2009). Historically, EU vessels had fished unsustainably off African countries (Agnew *et al.*, 2009; Belhabib *et al.*, 2012a), but recent regulatory updates, such as the reform for the European Union Common Fisheries Policy (CFP), have curbed these practices (Greenpeace 2015). Currently, the biggest source of IUU fishing in Atlantic African waters, in particular the SRFC region, is China, whose African distant water fishing fleet has swelled from 13 vessels in 1985, to 462 vessels in 2013 (Greenpeace 2015). Chinese vessels, which negotiate fishing agreements with African countries, have been documented trawling in shallow prohibited areas, underreporting catch, using illegal fishing gear, misreporting vessel specifications (including gross tonnage), and tampering with vessel monitoring systems (Greenpeace 2015). Currently, it appears that many West African coastal states lack the regulatory and enforcement capacity to adequately deal with this issue (Greenpeace 2015).

We found no regulatory information for Morocco, Liberia, Cote d'Ivoire, Togo, Benin, Nigeria, Cameroon, Democratic Republic of the Congo, and Angola. Overall, we found little information on the effectiveness of the current regulations in countries along the west coast of Africa and the Mediterranean, so it is difficult to assess how these regulations are impacting the extinction risk of both species. However, we do know that



in the African Atlantic there has been rapid growth of unregulated or underregulated exploitation of both species. In addition, throughout both species ranges' IUU fishing is still prevalent, and there is an abundance of coastal, artisanal fishers, who can be difficult to regulate because of the novelty of efforts to regulate and manage fishers that have long been undermanaged or not regulated at all. Because of these factors, as well as the high catchability and low reproductive potential of these species, we conclude that the inadequacy of existing regulatory mechanisms is likely contributing significantly to the extinction risk of both *R. rhinobatos* and *R. cemiculus*. Although the 2012 SPA/BD Protocol Annex II listing and other current regulations may, in time, provide sufficient protection to reduce these species' risk of extinction, the current uncertainty associated with the enforcement of these restrictions is too great to conclude these protections are adequate to prevent overutilization.

### **Extinction Risk**

Although there is no quantitative analysis of either species' abundance over time, and data for many demographic characteristics of *R. rhinobatos* and *R. cemiculus* are lacking, the best available data indicate that these species currently face a moderate risk of extinction due to their inherent demographic vulnerabilities, coupled with commercial overutilization and the inadequacy of regulations of commercial fisheries in their ranges. As defined in the status review (see Newell (2016)), a species is considered to be at a moderate risk of extinction when it is on a trajectory that puts it at a high level of extinction risk in the foreseeable future. In this case, we define the foreseeable future as 15-20 years, which is a reasonable amount of time to project the continued threat of overutilization as countries throughout both species' ranges develop and begin to enforce

relevant regulations. Additionally, given the relatively low productivity of these species, it will likely take more than one generation for these species to recover. This foreseeable future corresponds roughly to three generation times of *R. cemiculus* (Enajjar *et al.*, 2012). In this case, because of the lack of life-history data, we simply define the generation time of *R. cemiculus* as the age when the average female reaches sexual maturity (5.09 years).

### *Rhinobatos rhinobatos*

The common guitarfish faces demographic risks that significantly increase its risk of extinction in the foreseeable future. Although there is no species-specific quantitative analysis of *R. rhinobatos* abundance over time, the best available information (including survey data, interviews with fishers, and anecdotal accounts) indicates that this species has likely undergone significant declines throughout most of its range, with no evidence to suggest a reversal of these trends, with the exception of a few, extremely localized examples. Based on survey data and historical records, this species once occurred throughout the entire coastal northwestern Mediterranean, including as a common species off the Balearic Islands and Sicily, but it has been extirpated for decades throughout this entire area. In the Mediterranean, strong fishing pressure on this species, both as a targeted species and as bycatch, likely still occurs in Tunisia, Lebanon, southeast Turkey, Egypt, and Libya. In Africa, substantial and relatively recent declines have occurred in Mauritania, Senegal, Gambia, Guinea-Bissau, and Sierra Leone, all countries where this species was one of the most common elasmobranch species only a few decades ago. This species is also targeted illegally for its fins in Gabon, and IUU fishing is likely rampant throughout most of its African Atlantic range.

The limited productivity data on *R. rhinobatos* suggests this species may be relatively fast-growing and productive compared to other elasmobranchs. However, compared to most fished species, such as bony fishes, this species is slow-growing and has low productivity. Additionally, aspects of this species' reproductive strategy make it inherently vulnerable to overexploitation. This species is long-lived, and larger, older individuals are the most productive. Because this species migrates into shallow waters to give birth and breed, the breeding population of this species is very vulnerable to fishing capture and, as a result, a decline of the average size at maturity and rate of maturity in catches has been reported in many of the portions of this species' range where data are available. Information on spatial structure, connectivity, and diversity is unavailable for this species. However, differences in maximum TL, size at maturity, and reproductive timing throughout this species' range, combined with evidence of extirpated populations from areas that have not been recolonized after decades, suggest there may be isolated populations that contribute to the genetic diversity of this species.

In conclusion, although there is significant uncertainty regarding the current abundance of this species, the best available information indicates that the species has suffered substantial declines in many portions of its range where it was once common. Throughout almost all of this species' range, the threat of overutilization from industrial and artisanal fishing continues. Given the past evidence of fishery-driven extirpation in areas where this species was once common, and the still-practiced targeting of mature, breeding individuals, which has likely reduced the reproductive potential of these species, we find that continued fishing pressure poses a significant risk of endangering this species with extinction in the foreseeable future. Additionally, the regulations and

conservation measures in place are likely inadequate to reverse the decline of this species. In summary, based on the best available information and the above analysis, we conclude that *R. rhinobatos* is presently at a moderate risk of extinction throughout its range.

#### *Rhinobatos cemiculus*

The blackchin guitarfish faces demographic risks that significantly increase its risk of extinction in the foreseeable future. Although there is no species-specific quantitative analysis of *R. cemiculus* abundance over time, the best available information (including survey data, interviews with fishers, and anecdotal accounts) indicates that this species has likely undergone significant declines throughout most of its range, with no evidence to suggest a reversal of these trends, with the exception of a few, extremely localized examples. Based on survey data and historical records, this species once occurred throughout much of the coastal northwestern Mediterranean, likely as a common species off the Balearic Islands and Sicily, but it has been extirpated for decades throughout this entire area. In the Mediterranean, strong fishing pressure on this species, both as a targeted species and as bycatch, likely still occurs in Tunisia, Lebanon, southeast Turkey, Egypt, and Libya. In Africa, substantial and relatively recent declines have occurred in Mauritania, Senegal, Gambia, Guinea-Bissau, and Sierra Leone, all countries where this species was one of the most common elasmobranch species only a few decades ago. This species is also targeted illegally for its fins in Gabon, and IUU fishing is likely rampant throughout most of its African Atlantic range.

The limited productivity data on *R. cemiculus* suggests this species may be relatively fast-growing and productive compared to other elasmobranchs. However, compared to most fished species, such as bony fishes, this species is slow-growing and

has low productivity. Additionally, aspects of this species' reproductive strategy make it inherently vulnerable to overexploitation. This species is long-lived and larger, older individuals are the most productive. Because this species migrates into shallow waters to give birth and breed, the breeding population of this species is very vulnerable to fishing capture and, as a result, a decline of the average size at maturity and rate of maturity in catches has been reported in many of the portions of this species' range where data are available. Information on spatial structure, connectivity, and diversity is unavailable for this species. However, differences in maximum TL, size at maturity, and reproductive timing throughout this species' range, combined with evidence of extirpated populations from areas that have not been recolonized after decades, suggest there may be isolated populations that contribute to the genetic diversity of this species.

In conclusion, although there is significant uncertainty regarding the current abundance of this species, the best available information indicates that the species has suffered substantial declines in many portions of its range where it was once common. Throughout almost all of this species' range, the threat of overutilization from industrial and artisanal fishing continues. Given the past evidence of fishery driven extirpation in areas where this species was once common, and the still-practiced targeting of mature, breeding individuals, which has likely reduced the reproductive potential of this species, we find that continued fishing pressure poses a significant risk of endangering this species with extinction in the foreseeable future. Additionally, the regulations and conservation measures in place are likely inadequate to reverse the decline of this species. In summary, based on the best available information and the above analysis, we conclude that *R. cemiculus* is presently at a moderate risk of extinction throughout its range.

## Conservation Efforts

Throughout the ranges of *R. rhinobatos* and *R. cemiculus*, we found no efforts that are dedicated specifically to the conservation of these species. However, there are some efforts in portions of their ranges that may have a positive effect on the status of these species. These include recently developed management plans and protections from harvest and habitat modification in national parks and MPAs.

All SRFC countries except Gambia have adopted, or integrated into their fisheries management plans, a National Plan of Action for the Conservation and Management of Sharks (NPOA-Sharks) as part of the Sub-Regional Plan of Action for the Conservation of Sharks (SRPOA-Sharks) (Diop & Dossa 2011). With assistance from the International Union for the Conservation of Nature's Shark Specialist Group (IUCNSSG), these plans were developed under the recommendations of the FAO International Plan of Action for the Conservation and Management of Sharks (IPOA-SHARKS). IPOA-SHARKS seeks to ensure conservation and sustainable management of sharks with emphasis on quality data collection for management purposes (IUCNSSG 2016). In the SRFC, these plans are still in the early stage of implementation, and it remains to be seen how effective they will be in minimizing the extinction risk of *R. rhinobatos* and *R. cemiculus*. Additionally, all of the SRFC countries lack adequate technical and financial resources for monitoring and management, and regulations at the country level are not very strict and lack regional coordination (Diop & Dossa 2011). There are no NPOA-Sharks developed for the other African nations in these species' Atlantic ranges (IUCNSSG 2016). All European countries have adopted the EU Plan of Action (EUPOA Sharks) but we could find little information on conservation actions associated with this plan.

The GPMC is one of the only FAO Regional Fisheries Management Organizations (RMFOs) with the competence to adopt spatial management measures in the high seas. However, many of these protections have focused on the deep sea (FAO 2016e), offering little conservation value to either species. In the early 2000s, Cyprus initiated a fishing license buy-back program, which likely reduced trawl impact on these species (Hadjichristophorou 2006), although we found little information on either species' status in Cyprian waters, so we cannot evaluate the conservation benefit of this action.

The Regional Activity Centre for Specially Protected Areas (RAC/SPA) and the Network of Marine Protection Area Managers in the Mediterranean (MedPAN) have been working with a diverse network of partners to establish a network of well-connected, well-managed MPAs that protect at least 10 percent of the Mediterranean Sea while representing the sea's biodiversity (Gabri  *et al.*, 2012). The Gabri  *et al.*, (2012) report, entitled "The Status of Marine Protected Areas in the Mediterranean Sea," found that, as of 2012, only 4.6 percent of the Mediterranean surface (114,600 km<sup>2</sup>) was protected by MPAs, with these areas mostly concentrated in the coastal zone, predominantly in the northern basin where these species are rare or have been extirpated. Two Mediterranean ecoregions that are important to both species, the Tunisian plateau and the Levantine Sea, were found to be "markedly under-represented." Management of MPAs throughout the Mediterranean was found to be weak, with many MPAs lacking dedicated managers and management plans and financial resources, and having a low surveillance levels, with only northwestern MPAs reporting a sufficient budget to effectively manage. Additionally, the level of ecosystem protection varies throughout the

Mediterranean MPAs. For example, most are not “no-take” zones, so artisanal and recreational fishers still have access to many protected areas.

There are also MPAs on the West Coast of Africa that might impact or have already impacted the status of these two guitarfish species. In the Banc d’Arguin National Park in Mauritania, the use of specialized gear such as guitarfish nets as well as the targeting of shark and ray species has been prohibited since 2003 (Diop & Dossa 2011). This allowed the local guitarfish populations to recover, but both species are still targeted outside of the park (M. Ducrocq, Parcs Gabon, pers. comm. to J. Shultz, NMFS, 21 June, 2016). Guinea-Bissau has banned shark fishing in all of its MPAs, including the Bijagos Archipelago, which includes important areas for both species (Cross 2015; Diop & Dossa 2011). Mayumba National Park in Gabon, where at least *R. cemiculus* is found, has recently implemented gear restrictions and no longer allows industrial fishing (De Bruyne 2015). There are also other MPAs that dot the west coast of Africa, but they collectively cover only a small fraction of both species’ ranges (MPAtlas 2016).

### **Proposed Determination**

There is significant uncertainty regarding the status of the current populations of both *R. rhinobatos* and *R. cemiculus*, but both species may still be relatively common, although very likely below their historical population levels, in Tunisia, Israel, Lebanon, Syria, and southeastern Turkey. Based on this information, and the best available scientific and commercial information, as summarized here and in Newell (2015), we find that neither *Rhinobatos* species is currently at high risk of extinction throughout their entire ranges. However, both species are at moderate risk of extinction. We assessed the ESA section 4(a)(1) factors and conclude that *R. rhinobatos* and *R. cemiculus* face



ongoing threats of overutilization by fisheries and inadequate existing regulatory mechanisms throughout their ranges. Both species have also suffered a curtailment of a large portion of their historical ranges. These species' natural biological vulnerability to overexploitation and present demographic risks (declining abundance, decreasing size of reproductive individuals, and low productivity) are currently exacerbating the negative effects of these threats. Further, ongoing conservation efforts are not adequate to improve the status of these species. Thus, both species are likely to become endangered throughout their ranges in the foreseeable future. We therefore propose to list both species as threatened under the ESA.

### **Effects of Listing**

Conservation measures provided for species listed as endangered or threatened under the ESA include recovery plans (16 U.S.C. 1533(f)); concurrent designation of critical habitat, if prudent and determinable (16 U.S.C. 1533(a)(3)(A)) and consistent with implementing regulations; Federal agency requirements to consult with NMFS under section 7 of the ESA to ensure their actions do not jeopardize the species or result in adverse modification or destruction of critical habitat should it be designated (16 U.S.C. 1536); and, for endangered species, prohibitions on taking (16 U.S.C. 1538). Recognition of the species' plight through listing promotes conservation actions by Federal and state agencies, foreign entities, private groups, and individuals.

### *Identifying Section 7 Conference and Consultation Requirements*

Section 7(a)(2) (16 U.S.C. 1536(a)(2)) of the ESA and NMFS/USFWS regulations require Federal agencies to consult with us to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed

species or destroy or adversely modify critical habitat. Section 7(a)(4) (16 U.S.C. 1536(a)(4)) of the ESA and NMFS/USFWS regulations also require Federal agencies to confer with us on actions likely to jeopardize the continued existence of species proposed for listing, or that result in the destruction or adverse modification of proposed critical habitat of those species. It is unlikely that the listing of these species under the ESA will increase the number of section 7 consultations, because these species occur outside of the United States and are unlikely to be affected by Federal actions.

### *Critical Habitat*

Critical habitat is defined in section 3 of the ESA (16 U.S.C. 1532(5)) as: (1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed upon a determination that such areas are essential for the conservation of the species. “Conservation” means the use of all methods and procedures needed to bring the species to the point at which listing under the ESA is no longer necessary (16 U.S.C. 1532(3)). Section 4(a)(3)(A) of the ESA (16 U.S.C. 1533(a)(3)(A)) requires that, to the extent prudent and determinable, critical habitat be designated concurrently with the listing of a species. However, critical habitat shall not be designated in foreign countries or other areas outside U.S. jurisdiction (50 CFR 424.12(h)).

The best available scientific and commercial data as discussed above identify the geographical areas occupied by *R. rhinobatos* and *R. cemiculus* as being entirely outside U.S. jurisdiction, so we cannot designate critical habitat for these species.

*Identification of Those Activities That Would Constitute a Violation of Section 9 of the ESA*

On July 1, 1994, NMFS and FWS published a policy (59 FR 34272) that requires NMFS to identify, to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the ESA. Because we are proposing to list the *R. rhinobatos* and *R. cemiculus* as threatened, no prohibitions of section 9(a)(1) of the ESA will apply to these species.

*Protective Regulations Under Section 4(d) of the ESA*

We are proposing to list *R. rhinobatos* and *R. cemiculus* as threatened under the ESA. In the case of threatened species, ESA section 4(d) leaves it to the Secretary's discretion whether, and to what extent, to extend the section 9(a) "take" prohibitions to the species, and authorizes us to issue regulations necessary and advisable for the conservation of the species. Thus, we have flexibility under section 4(d) to tailor protective regulations, taking into account the effectiveness of available conservation measures. The section 4(d) protective regulations may prohibit, with respect to threatened species, some or all of the acts which section 9(a) of the ESA prohibits with respect to endangered species. These section 9(a) prohibitions apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. Because neither species has ever occupied U.S. waters, and the United States has no known commercial or management

interest in either species, we propose to not apply any section 9(a) prohibitions to either species.

### **Public Comments Solicited**

To ensure that any final action resulting from this proposed rule to list the *R. rhinobatos* and *R. cemiculus* as threatened will be as accurate and effective as possible, we are soliciting comments and information from the public, other concerned governmental agencies, the scientific community, industry, and any other interested parties on information in the status review and proposed rule. Comments are encouraged on these proposals (See **DATES** and **ADDRESSES**). We must base our final determination on the best available scientific and commercial information. We cannot, for example, consider the economic effects of a listing determination. Before finalizing this proposed rule, we will consider the comments and any additional information we receive, and such information may lead to a final regulation that differs from this proposal or result in a withdrawal of this listing proposal. We particularly seek:

- (1) Information concerning the threats to the *Rhinobatos* species proposed for listing;
  - (2) Taxonomic information on the species;
  - (3) Biological information (life history, genetics, population connectivity, etc.) on the species;
  - (4) Efforts being made to protect the species throughout their current ranges;
  - (5) Information on the commercial trade of the species;
  - (6) Historical and current distribution and abundance and trends for the species;
- and

(7) Any of the above information on either or both species from the following countries, from which we have very little information: Morocco, Liberia, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, São Tomé and Príncipe, Republic of the Congo, Democratic Republic of the Congo, Angola, Algeria, and Syria.

We request that all information be accompanied by: (1) Supporting documentation, such as maps, bibliographic references, or reprints of pertinent publications; and (2) the submitter's name, address, and any association, institution, or business that the person represents.

#### *Role of Peer Review*

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing a minimum peer review standard. We solicited peer review comments on the draft common guitarfish and blackchin guitarfish status review report (Newell (2016)) from three scientists familiar with both guitarfish species. We received and reviewed these peer review comments, and incorporated them into both the draft status review report for the common guitarfish and blackchin guitarfish and this proposed rule. Peer reviewer comments on the draft status review are summarized in the peer review report, which is available at: [http://www.cio.noaa.gov/services\\_programs/prplans/PRsummaries.html](http://www.cio.noaa.gov/services_programs/prplans/PRsummaries.html).

#### **References**

A complete list of references used in this proposed rule is available upon request (see **ADDRESSES**).

#### **Classification**

### *National Environmental Policy Act*

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation v. Andrus*, 675 F. 2d 825 (6th Cir. 1981), NMFS has concluded that ESA listing actions are not subject to the environmental assessment requirements of the National Environmental Policy Act (NEPA).

### *Executive Order 12866, Regulatory Flexibility Act, and Paperwork Reduction Act*

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this proposed rule is exempt from review under Executive Order 12866. This proposed rule does not contain a collection-of-information requirement for the purposes of the Paperwork Reduction Act.

### *Executive Order 13132, Federalism*

In accordance with E.O. 13132, we determined that this proposed rule does not have significant federalism effects and that a federalism assessment is not required. In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual state and Federal interest, this proposed rule will be given to the relevant governmental agencies in the countries in which the species occurs, and they will be invited to comment. We will confer with the U.S. Department of State to ensure appropriate notice is given to all foreign nations within the ranges of both species. As the process continues, we intend to continue engaging in informal and

formal contacts with the U.S. State Department, giving careful consideration to all written and oral comments received.

**List of Subjects in 50 CFR Part 223**

Endangered and threatened species, Exports, Imports, Transportation.

Dated: September 12, 2016.

**Samuel D. Rauch, III,**

*Deputy Assistant Administrator for Regulatory Programs,*

*National Marine Fisheries Service.*

For the reasons set out in the preamble, we propose to amend 50 CFR part 223 as follows:

**PART 223—THREATENED MARINE AND ANADROMOUS SPECIES**

1. The authority citation for part 223 continues to read as follows:

**Authority:** 16 U.S.C. 1531-1543; subpart B, § 223.201–202 also issued under 16 U.S.C. 1361 *et seq.*; 16 U.S.C. 5503(d) for § 223.206(d)(9).

2. In § 223.102, paragraph (e), add entries for two species in alphabetical order by common name under the “Fishes” table subheading to read as follows:

**§ 223.102 Enumeration of threatened marine and anadromous species.**

\* \* \* \* \*

(e) \* \* \*

Species <sup>1</sup>			Citation(s) for listing determination(s)	Critical habitat	ESA rules
Common name	Scientific name	Description of listed entity			

*****					
<b>Fishes</b>					
*****					
Guitarfish, blackchin	<i>Rhinobatos cemiculus</i>	Entire species	[ <b>FEDERAL REGISTER CITATION AND DATE WHEN PUBLISHED AS A FINAL RULE</b> ]	NA	NA.
Guitarfish, common	<i>Rhinobatos rhinobatos</i>	Entire species	[ <b>FEDERAL REGISTER CITATION AND DATE WHEN PUBLISHED AS A FINAL RULE</b> ]	NA	NA.
*****					

<sup>1</sup>Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, see 56 FR 58612, November 20, 1991).

\* \* \* \* \*

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